

Application No. 10/792,307

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*AMENDMENTS TO THE CLAIMS*

This listing of claims replaces all prior versions, and listings, of claims in the application.

1. (Currently Amended) An isolated or purified nucleic acid molecule comprising SEQ ID NO: 3 ~~consisting essentially of a nucleotide sequence encoding transductin-2 (TDC2) or a fragment thereof comprising at least 110 contiguous nucleotides.~~
2. (Cancelled)
3. (Currently Amended) ~~The~~ An isolated or purified nucleic acid molecule comprising a nucleotide sequence that of claim 1, which (i) encodes the amino acid sequence of SEQ ID NO: 4 ~~or a fragment thereof comprising at least 70 contiguous amino acids, (ii) consists essentially of the nucleotide sequence of SEQ ID NO: 3 or a fragment thereof comprising at least 110 contiguous nucleotides, (iii) hybridizes under moderately stringent conditions to an isolated or purified nucleic acid molecule consisting essentially of the nucleotide sequence that is complementary to SEQ ID NO: 3 or a fragment thereof, or (iv) shares 49% or more identity with SEQ ID NO: 3.~~
4. (Cancelled)
5. (Currently Amended) An isolated or purified nucleic acid molecule ~~comprising~~ consisting essentially of a nucleotide sequence that is complementary to an isolated or purified nucleic acid molecule comprising SEQ ID NO: 3 either of a nucleotide sequence encoding human TDC2 or a fragment thereof.
6. (Currently Amended) ~~The~~ An isolated or purified nucleic acid molecule comprising a nucleotide sequence that of claim 5, which (i) is complementary to a nucleotide sequence encoding the amino acid sequence of SEQ ID NO: 4 ~~or a fragment thereof comprising at least 70 contiguous amino acids, (ii) is complementary to the nucleotide sequence of SEQ ID NO: 3 or a fragment thereof comprising at least 110 contiguous nucleotides, (iii) hybridizes under moderately stringent conditions to an isolated or purified nucleic acid molecule consisting essentially of SEQ ID NO: 3 or a fragment thereof, or (iv)~~

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~~shares 49% or more identity with the nucleotide sequence that is complementary to SEQ ID NO: 3.~~

7. (Original) A vector comprising the isolated or purified nucleic acid molecule of claim 1.

8. (Original) A vector comprising the isolated or purified nucleic acid molecule of claim 5.

9. (Withdrawn and Currently Amended) A composition comprising the isolated or purified nucleic acid molecule of claim 1, ~~optionally in the form of a vector~~, and a pharmaceutically acceptable carrier.

10. (Withdrawn and Currently Amended) A composition comprising the isolated or purified nucleic acid molecule of claim 5, ~~optionally in the form of a vector~~, and a pharmaceutically acceptable carrier.

11. (Original) A cell comprising the vector of claim 7.

12. (Original) A cell comprising the vector of claim 8.

13.-19. (Cancelled)

20. (Withdrawn and Currently Amended) A method of detecting hearing loss or a predisposition to hearing loss in an animal, which method comprises detecting at least one mutation in a gene encoding TDC2 in a test sample comprising a nucleic acid comprising the TDC2 gene obtained from the animal, wherein a wild-type TDC2 gene encodes SEQ ID NO: 4, and the at least one mutation is indicative of hearing loss or a predisposition to hearing loss in the animal.

21. (Withdrawn and Currently Amended) A method of determining the level of nucleic acid comprising the wild-type TDC2 gene and/or a mutant TDC2 gene in a test

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sample comprising a nucleic acid comprising the wild-type TDC2 gene and/or a mutant TDC2 gene obtained from an animal, which method comprises assaying the test sample for the level of nucleic acid comprising the wild-type TDC2 gene and/or a mutant TDC2 gene, wherein the wild-type TDC2 gene encodes SEQ ID NO: 4, and a decrease in the level of nucleic acid comprising the wild-type TDC2 gene and/or an increase in the level of nucleic acid comprising a mutant TDC2 gene in the test sample as compared to a control sample is indicative of hearing loss or a predisposition to hearing loss in the animal.

22. (Withdrawn and Currently Amended) The method of claim 21, wherein the method is used for prognosticating hearing loss in the animal, which method further comprises comparing the level of nucleic acid comprising the wild-type TDC2 gene and/or a mutant TDC2 gene in the test sample to the level of nucleic acid comprising the wild-type TDC2 gene and/or a mutant TDC2 gene, respectively, in another test sample obtained from the animal over time, wherein the wild-type TDC2 gene encodes SEQ ID NO: 4, and wherein a decrease in the level of nucleic acid comprising the wild-type TDC2 gene and/or an increase in the level of nucleic acid comprising a mutant TDC2 gene is indicative of an unfavorable prognosis, an increase in the level of the nucleic acid comprising the wild-type TDC2 gene and/or a decrease in the level of the nucleic acid comprising a mutant TDC2 gene is indicative of a favorable prognosis, and no change in the level of nucleic acid comprising the wild-type TDC2 gene and/or a mutant TDC2 gene is indicative of no change in the hearing loss.

23. (Withdrawn and Currently Amended) The method of claim 21, wherein the method is used for assessing the efficacy of treatment of hearing loss in the animal with a given anti-hearing loss agent, which method further comprises comparing the level of nucleic acid comprising the wild-type TDC2 gene and/or a mutant TDC2 gene in the test sample to the level of nucleic acid comprising the wild-type TDC2 gene and/or a mutant TDC2 gene, respectively, in another test sample obtained from the animal over time, wherein the wild-type TDC2 gene encodes SEQ ID NO: 4, and wherein a decrease in the level of nucleic acid comprising the wild-type TDC2 gene and/or an increase in the level of nucleic acid comprising a mutant TDC2 gene is indicative of the anti-hearing loss agent being effective, an increase in the level of the nucleic acid comprising the wild-type TDC2 gene and/or a

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decrease in the level of the nucleic acid comprising a mutant TDC2 gene is indicative of the anti-hearing loss agent being ineffective, and no change in the level of nucleic acid comprising the wild-type TDC2 gene and/or a mutant TDC2 gene is indicative of no change in the hearing loss due to treatment with the anti-hearing loss agent.

24.-31. (Cancelled)

32. (New) A vector comprising the isolated or purified nucleic acid molecule of claim 3.

33. (New) A vector comprising the isolated or purified nucleic acid molecule of claim 6.

34. (New and Withdrawn) A composition comprising the isolated or purified nucleic acid molecule of claim 3 and a pharmaceutically acceptable carrier.

35. (New and Withdrawn) A composition comprising the isolated or purified nucleic acid molecule of claim 6 and a pharmaceutically acceptable carrier.

36. (New and Withdrawn) A composition comprising the vector of claim 7 and a pharmaceutically acceptable carrier.

37. (New and Withdrawn) A composition comprising the vector of claim 8 and a pharmaceutically acceptable carrier.

38. (New and Withdrawn) A composition comprising the vector of claim 32 and a pharmaceutically acceptable carrier.

39. (New and Withdrawn) A composition comprising the vector of claim 33 and a pharmaceutically acceptable carrier.

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40. (New and Withdrawn) A cell comprising the isolated or purified nucleic acid molecule of claim 1.

41. (New and Withdrawn) A cell comprising the isolated or purified nucleic acid molecule of claim 3.

42. (New and Withdrawn) A cell comprising the isolated or purified nucleic acid molecule of claim 5.

43. (New and Withdrawn) A cell comprising the isolated or purified nucleic acid molecule of claim 6.

44. (New and Withdrawn) A cell comprising the vector of claim 32.

45. (New and Withdrawn) A cell comprising the vector of claim 33.